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BIOGRAPHY.

ELISHA SCOTT LOOMIS, A. M., PH. D.

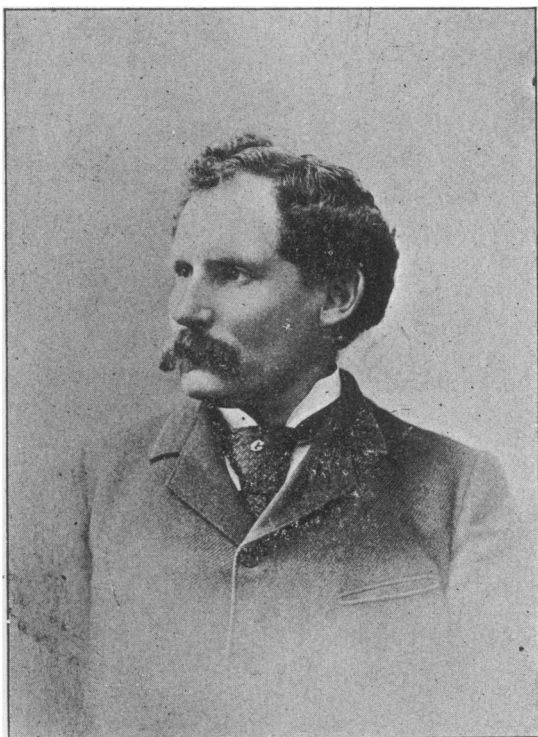
BY B. F. FINKEL.

PROFESSOR LOOMIS was born near the village of Wadsworth, Medina county, Ohio, September 18th, 1852, and is the oldest of a family of eight children, seven boys and one girl. He is of English-Scotch and Pennsylvania Dutch descent.

The Loomises came to Portage county, Ohio, from Southamptton, Mass., about 1788, but originally the Loomis family dwelt at Windsor, Connecticut, where one Joseph Loomis settled in 1639, coming from Braintree, England.

Professor Loomis being left fatherless at the age of twelve and his widowed mother being left homeless and penniless, he was obliged to help care for his mother and two younger brothers, the babies, as best he could. At the age of thirteen years six months, he hired out to a farmer for six months at \$3.00 per month, waiting nearly a year before he received his wages. In the spring of 1867, he hired out for eight months at \$5.00 per month. Out of this hard earned sum, he loaned \$25.00 at 6%, being his first earnings that he did not give to his mother for her support. Working for the same man for the following three years, his wages rose to \$6 $\frac{1}{2}$, \$8, and \$10, per month. The next two years we find him working on another farm at \$13.00 and \$16.00 per month. In this school of adversity, he learned what many young men ever fail to learn, he learned the lessons of patience, economy, frugality, and industry. Through all these years of toil, he succeeded in attending the district school about four months each winter, working for his board while doing so.

While a pupil in a small district school in the hills of Holmes county, Ohio, he desired to learn the beauty and mystery of Algebra. Having walked seven



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miles to a neighboring town to procure a book, he purchased Ray's *Elementary Algebra*, without a teacher (the district school teacher knew nothing about Algebra) took up the study, conquered the difficulties, and reached equations of the first degree in the short time of two months. This he did without a word of help or encouragement from any one except his mother who encouraged him as best she could, for she never attended school herself but a few terms previous to her twelfth year, and was never permitted to learn to write.

Possessing, however, a thirst for learning and being determined to go to college (this he inherited from his grandmother Loomis as he believes, she being a descendant from an educated Scotch family), he taught school the summer 1873, teaching 54 days for \$50, and boarding himself. His savings now amounted to \$250. In the fall of 1873, he went to Baldwin University, Berea, Ohio, and commenced a college course beginning at the foot of the ladder. Teaching during the winters, applying himself very diligently to his books in private and working in the harvest fields during summer vacations, at the same time doing his part in caring for his mother, remaining out of college long enough to earn money by teaching at \$60 per month, to buy a home in Shreve, Ohio, into which he moved his mother and brothers the fall of 1876, he finally graduated, June 10, 1880.

On the 17th of June, 1880, he married Miss Letitia E. Shire, who was engaged in teaching near Loudonville, Ohio. Taking charge of the Burbank Academy and public schools of the same place, they found time to take up the course of reading in the C. L. S. C., which they finished together, graduating in the same class in 1884, at Chautauqua, New York.

In 1881, Professor Loomis was asked to take charge of the Richfield High School in Summit county, Ohio, which position he accepted and filled for four years to the entire satisfaction of his patrons. In the summer of 1885, he went to south Kansas and while there the trustees of Baldwin University, Berea, Ohio, sought him out, and in August elected him to the chair of Mathematics in that Institution. This position Professor Loomis now holds with honor to himself and the University. His predecessor was Dr. Aaron Schuyler, the very able teacher and author of a series of excellent mathematical text-books.

While Professor Loomis has a special fondness for mathematical studies, yet his devotion to them did not prevent him from investigating other special subjects; and that he might be the better teacher and broader thinker, he took the post-graduate course on metaphysics and social science in the University of Wooster, receiving, in recognition of his sound scholarship, the degree of Ph. D., June 20, 1888. The subject of the thesis submitted for the above degree was "Theism the Result of Completed Investigation." This thesis exhibits much thought and wide reading on the part of the author.

Dr. Loomis has given instruction to correspondence students in eight different states. Among them was a Professor in a western college who took a course in Williamson's *Differential Calculus*. He has been a contributor to some of the leading *Mathematical Journals* of the United States and is at present a valued contributor to the *MONTHLY*. Dr. Loomis also holds a High-School

Life Certificate issued by the State of Ohio; it covers 21 branches and is signed by some of the ablest educational men of Ohio. He says he prizes it more highly than he does his first diploma, because it means more, educationally.

Having taught in the various grades of schools from the primary district school to the college, Dr. Loomis has made a careful study of the methods of teaching, having carefully read some fifty different pedagogical works, with a view to discover the true Psychic law of how one soul communicates to another most economically and clearly any piece of knowledge. As a result, he has learned to clothe the "dry bones of Mathematics" so that his students say, "this is not dry, this is interesting."

Needing more outdoor exercise than he was wont to take, Prof. Loomis took up the subject of engineering. He is now the engineer for the village of Berea, as well as a member of the Society of Civil Engineers of Ohio.

Having made a public confession of Christ when but nineteen years of age, uniting first with the Presbyterian church and afterwards with the Methodist, Dr. Loomis wishes to say for the encouragement of young men just entering upon life's duties that the best counsel and guide any young man can choose is the ten commandments and the Lord's Prayer. He who lives up to the full measure found therein will be sought out and given posts of duty and honor. Honor thy father and thy mother, love thy neighbor as thyself, and forgive thine enemy, are factors which cannot be omitted in solving the great problems of life here and hereafter.

Dr. Loomis can say what any young man ought to be proud to say, but what too few are able to say: viz., that he has never purchased or used a cent's worth of tobacco in his life, and that he has never stood before the bar of a drinking saloon and asked for, or drank that which comes from over the bar of such a place, always having been a pronounced opponent of tobacco and intoxicating drinks in all their forms.

To day, many young men who are failing in life, beholding those who are succeeding, say "why have luscious plums of success fallen in their mouths while in mine have fallen the bitter almonds of adversity. But the answer is: Plums do not fall in a successful man's mouth by chance; he takes hold of the tree upon which fortune hangs and shakes it bravely and manfully. Providence does not shower fortune and fame on some and poverty and degradation on others. Blasphemous is he who would attribute to the loving Father all the misery, wretchedness, and woe that are in the world, when they are the results of violated law, outraged conscience. He who would rise to positions of honor and distinction must do so by honest persistent effort. Dr. Loomis had heartaches and discouragements which would have conquered a less resolute spirit but he was not to be vanquished in the struggle for the consummation of his noble purposes. How consoling it is for those who think the world is against them to read of the struggles and disappointments, the trials and temptations of those who have risen from penury and want, from the humble and despised walks of life to positions of honor through their effort. Thus was Garfield: day before yesterday on the toe-path, yesterday president of the United States,

and to-day a hero of eternity. Thus it is with thousands of men all over the world to-day. When they tread the wine press alone, they looked to higher callings. But they not only looked to higher callings, they worked for higher things and putting their trust in their strong right arm and the power of God, they battered down the bulwarks between them and the world of fortune and success. While the slumberers slept they planned for the morrow, for the week, for the month, for the year, yea for life here and hereafter. This is true of Dr. Loomis. Possessing high aims and a strong will he is bound to succeed in whatever he undertakes, obstacles having been and are only incentives to more vigorous action. Building on the foundation of temperance, honesty, and industry, Dr. Loomis will succeed in whatever field he may be called, his motto being *Viam Inveniam aut Faciam*.

NON-EUCLIDEAN GEOMETRY: HISTORICAL AND EXPOSITORY.

By GEORGE BRUCE HALSTED, A. M., (Princeton); Ph. D. (Johns Hopkins): Member of the London Mathematical Society; and Professor of Mathematics in the University of Texas, Austin, Texas.

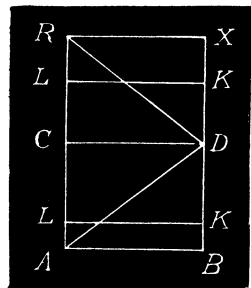
CHAPTER SECOND.

[Continued from the June Number.]

PROPOSITION V. *The hypothesis of right angle, if even in a single case it is true, always in every case it alone is true.*

PROOF. Let the join CD (Fig. 4) make right angles with any two equal perpendiculars AC , BD , standing upon any other AB .

CD will be (P. III.) equal to this AB . Assume in AC , and BD produced two sects CR , DX , equal to these AC , BD ; and join RX . We may easily show that the join RX will be equal to this AB , and the angles at it right. And first indeed by superposition of the quadrilateral $ABDC$ upon the quadrilateral $CDXR$, applied to the common base CD .



More elegantly then we may proceed thus. Join AD , RD . It follows (Eu. I. 4.) in the triangles ACD , RCD , the bases AD , RD will be equal and likewise the angles CDA , CDR , and certainly ADB , RDX , because equal remainders from a right angle.

Whereby in turn (Eu. I. 4.) in the triangles ADB , RDX , the base AB will be equal to the base RX . Therefore (from the preceding proposition)